Tasks 2: Execute the commands in Table 1 to observe the output of the following domain. Explain the output.

5. Suggest one domain name. – uniqlo.com

```
kc@kexi:~$ nslookup uniqlo.com

Server: 127.0.0.53

Address: 127.0.0.53#53

Non-authoritative answer:

Name: uniqlo.com

Address: 13.113.93.57

Name: uniqlo.com

Address: 54.178.226.247
```

```
kc@kexi:~$ host uniqlo.com
uniqlo.com has address 54.178.226.247
uniqlo.com has address 13.113.93.57
uniqlo.com mail is handled by 0 uniqlo-com.mail.protection.outlook.com.
uniqlo.com mail is handled by 10 mail2.uniqlo.co.jp.
uniqlo.com mail is handled by 30 mail4.uniqlo.co.jp.
uniqlo.com mail is handled by 10 mail1.uniqlo.co.jp.
uniqlo.com mail is handled by 30 mail3.uniqlo.co.jp.
```

```
kc@kexi:~$ dig uniqlo.com
; <<>> DiG 9.18.18-Oubuntu0.22.04.1-Ubuntu <<>> uniqlo.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 20864
;; flags: qr rd ra; QUERY: 1, ANSWER: 2, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;uniqlo.com.
                                        Α
;; ANSWER SECTION:
uniqlo.com.
                        60
                                IN
                                        Α
                                                13.113.93.57
uniqlo.com.
                        60
                                IN
                                        Α
                                                54.178.226.247
;; Query time: 35 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Tue Jan 16 15:12:55 +08 2024
;; MSG SIZE rcvd: 71
```

```
akexi:-$ whois uniqlo.com
Domain Name: UNIQLO.COM
Registry Domain ID: 2868675_DOMAIN_COM-VRSN
Registrar WHOIS Server: whois.lapi.net
Registrar URL: http://www.lapi.net
Updated Date: 2023-11-10700:39:542
   Updated Date: 2023-11-10T00:39:54Z
Creation Date: 1998-12-28T05:00:00Z
Registry Expiry Date: 2024-12-28T05:00:00Z
Registrar: 1API GmbH
Registrar IANA ID: 1387
Registrar Abuse Contact Email: abuse@1api.net
Registrar Abuse Contact Phone: +49.68949396850
Domain Status: clientTransferProhibited https://icann.org/epp#clientTransferProhibited
  Name Server: NS-1415.AWSDNS-48.ORG
Name Server: NS-1728.AWSDNS-24.CO.UK
Name Server: NS-365.AWSDNS-45.COM
Name Server: NS-517.AWSDNS-00.NET
DNSSEC: unsigned
URL of the ICANN Whois Inaccuracy Complaint Form: https://www.icann.org/wicf/
>>> Last update of whois database: 2024-01-16T07:15:18Z <<<
  For more information on Whois status codes, please visit https://icann.org/epp
  NOTICE: The expiration date displayed in this record is the date the
 registrar's sponsorship of the domain name registration in the registry is currently set to expire. This date does not necessarily reflect the expiration date of the domain name registrant's agreement with the sponsoring registrar. Users may consult the sponsoring registrar's Whois database to view the registrar's reported date of expiration for this registration.
   TERMS OF USE: You are not authorized to access or query our Whois
TERMS OF USE: You are not authorized to access or query our Whois database through the use of electronic processes that are high-volume and automated except as reasonably necessary to register domain names or modify existing registrations; the Data in VeriSign Global Registry Services' ("VeriSign") Whois database is provided by VeriSign for information purposes only, and to assist persons in obtaining information about or related to a domain name registration record. VeriSign does not guarantee its accuracy. By submitting a Whois query, you agree to abide by the following terms of use: You agree that you may use this Data only for lawful purposes and that under no circumstances will you use this Data to: (1) allow, enable, or otherwise support the transmission of mass unsolicited, commercial advertising or solicitations via e-mail, telephone, or facsimile; or (2) enable high volume, automated, electronic processes
  or facsimile; or (2) enable high volume, automated, electronic processes that apply to VeriSign (or its computer systems). The compilation, repackaging, dissemination or other use of this Data is expressly
prohibited without the prior written consent of VeriSign. You agree not to use electronic processes that are automated and high-volume to access or query the Whois database except as reasonably necessary to register domain names or modify existing registrations. VeriSign reserves the right to restrict your access to the Whois database in its sole discretion to ensure operational stability. VeriSign may restrict or terminate your access to the Whois database for failure to abide by these terms of use. VeriSign reserves the right to modify these terms at any time.
 The Registry database contains ONLY .COM, .NET, .EDU domains and
  Registrars.
Domain Name: UNIQLO.COM
Registry Domain ID: 2868675_DOMAIN_COM-VRSN
Registrar WHOIS Server: whois.1api.net
  Registrar URL: http://www.1api.net
Updated Date: 2023-03-08T01:50:36Z
Updated Date: 2023-03-08101:30:302
Creation Date: 1998-12-28T05:00:00Z
Registrar Registration Expiration Date: 2024-12-28T05:00:00Z
Registrar: 1API GmbH
Registrar IANA ID: 1387
 Registrar Abuse Contact Email: abuse@1api.net
Registrar Abuse Contact Phone: +49.68949396x850
  Domain Status: clientTransferProhibited - http://www.icann.org/epp#clientTransfe
  rProhibited
  Registry Registrant ID:
Registry Registrant ID:
Registrant Name: Domain Administrator
Registrant Organization: FAST RETAILING CO., LTD.
Registrant Street: 10717-1, Sayama
Registrant City: Yamaguchi-City
Registrant State/Province: Yamaguchi
Registrant Postal Code: 754-0894
Pegistrant Country: 10
Registrant Fostal Code: 754-0694
Registrant Country: JP
Registrant Phone: +81.362720800
Registrant Phone Ext:
Registrant Fax:
Registrant Fax Ext:
Registrant Email: dommaster@mark-i.jp
Registrant Email: nommaster@mark-i.jp
  Registry Admin ID:
Admin Name: Domain Administrator
Admin Organization: FAST RETAILING CO., LTD.
Admin Street: 10717-1, Sayama
Admin City: Yamaguchi-City
Admin State/Province: Yamaguchi
Admin Postal Code: 754-0894
Admin Country: JP
Admin Phone: +81.362720800
```

```
Admin Phone: +81.362720800
Admin Phone Ext:
Admin Fax:
Admin Fax Ext:
Admin Email: dommaster@mark-i.jp
Registry Tech ID:
Tech Name: Domain Administrator
Tech Organization: Mark-i Inc.
Tech Street: 8F Akasaka Tameike Tower, 2-17-7 Akasaka
Tech City: Minato-ku
Tech State/Province: Tokyo
Tech Postal Code: 107-0052
Tech Postal Code: 107-0052
Tech Pohone: +81.368629956
Tech Phone Ext:
Tech Fax: +81.368629931
Tech Fax Ext:
Tech Email: dommaster@mark-i.jp
Name Server: ns-517.awsdns-00.net
Name Server: ns-517.awsdns-90.net
Name Server: ns-128.awsdns-24.co.uk
Name Server: ns-128.awsdns-24.co.uk
Name Server: ns-1415.awsdns-48.org
DNSSEC: unsigned
URL of the ICANN WHOIS Data Problem Reporting System:
http://wdprs.internic.net/
>>> Last update of WHOIS database: 2024-01-16T07:15:25Z <<</td>

For more information on Whois status codes, please visit https://www.icann.org/resources/pages/epp-status-codes-2014-06-16-en.

; This data is provided for information purposes, and to assist persons obtaining information about or related to domain name registration records. We do not guarantee its accuracy.

§ By submitting a MHOIS query, you agree that you will use this data only for lawful purposes and that, under no circumstances, you will use this data to
1) allow, enable, or otherwise support the transmission of mass
unsolicited, commercial advertising or solicitations via E-mail
(spam); or
2) enable high volume, automated, electronic processes that apply
to this WHOIS server.
; These terms may be changed without prior notice.
§ By submitting this query, you agree to abide by this policy.
```

Tasks 3-1: Use the stub resolver module in the dnspython library. Use the following recursive resolver:-

3. OpenDNS - 208.67.222.222

```
import tkinter as tk
from tkinter import ttk
import dns.resolver
# Create the resolver object using OpenDNS
resolver = dns.resolver.Resolver()
resolver.nameservers = ['208.67.222.222']

def lookup_dns():
    domain_name = domain_entry.get()
    records = ['A', 'AAAA', 'NS', 'MX', 'CNAME', 'SOA', 'SRV']
    recordtext = ['A Record', 'AAAA Record', 'NS Record', 'MX Record',
'CNAME Record', 'SOA Record', 'SRV Record']

    result_text.delete('1.0', tk.END)

    for x, y in enumerate(records):
        try:
        # Use the configured resolver for queries
        results = resolver.resolve(domain_name, y)
        size = len(results)
        n = 0
        while n < size:
        result_text.insert(tk.END, recordtext[x] + ' : ' +
results[n].to_text() + '\n\n')</pre>
```

```
n += 1
recordtext[x].upper() + '\n\n')
def clear_input():
root = tk.Tk()
frame.grid(row=0, column=0, sticky=(tk.W, tk.E, tk.N, tk.S))
domain_label = ttk.Label(frame, text="Enter a domain name:")
domain_label.grid(row=0, column=0, padx=10, pady=10, sticky=tk.W)
domain entry = ttk.Entry(frame, width=30)
domain entry.grid(row=0, column=1, padx=10, pady=10, sticky=(tk.W, tk.E))
lookup_button = ttk.Button(frame, text="Lookup", command=lookup dns)
lookup button.grid(row=1, column=0, padx=10, pady=10, sticky=tk.W)
clear_button = ttk.Button(frame, text="Clear", command=clear_input)
clear button.grid(row=1, column=1, padx=10, pady=10, sticky=tk.W)
result label = ttk.Label(frame, text="Results:")
result label.grid(row=2, column=0, columnspan=2, padx=10, pady=10,
result text = tk.Text(frame, width=55, height=30, wrap=tk.WORD)
result text.grid(row=3, column=0, columnspan=2, padx=10, pady=10,
exit button = ttk.Button(frame, text="Exit", command=root.destroy)
exit button.grid(row=4, column=0, columnspan=2, padx=10, pady=10,
root.mainloop()
```

Tasks 3-2: Use the tkinter/customkinter to develop the interface as shown in Figure 2.

DNS Lookup app



Overview of wireshark filter with udp.port == 53

***Recursive Resolver = OpenDNS is 208.67.222.222

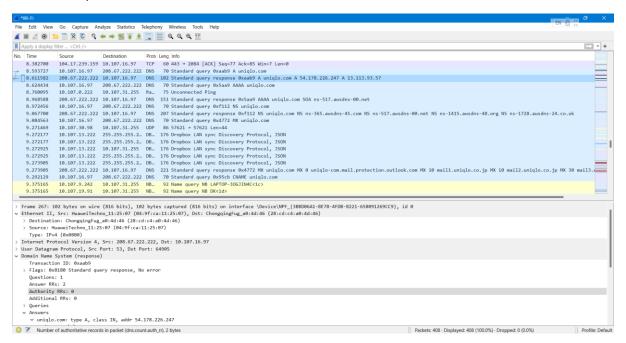
IP address of UPM wi-fi = 10.107.16.97

The question and answer response by OpenDNS address and UPM IP address.

```
Wireless LAN adapter Wi-Fi:

Connection-specific DNS Suffix . : upm.edu.my
Link-local IPv6 Address . . . . : fe80::e6c8:a6f2:e1e3:cd7c%6
IPv4 Address . . . . . . . : 10.107.16.97
Subnet Mask . . . . . . . . : 255.255.224.0
Default Gateway . . . . . . : 10.107.31.254
```

Part for Uniqlo.com



1. A Record: 52.193.53.194

A Record: 54.178.235.201

The queries for "uniqlo.com" and responses containing the IP addresses 52.193.53.194 and 54.178.235.201.

```
8.593727 10.107.16.97 208.67.222.222 DNS 70 Standard query 0xaab9 A uniqlo.com
8.611582 208.67.222.222 10.107.16.97 DNS 102 Standard query response 0xaab9 A uniqlo.com
                208.67.222.222 10.107.16.97 DNS 102 Standard query response 0xaab9 A uniqlo.com A 54.178.226.247 A 13.113.93.57
> Frame 267: 102 bytes on wire (816 bits), 102 bytes captured (816 bits) on interface \Device\NPF_{3BBD06A1-8E78-4FDB-8221-658091269CC9}, id 0
v Ethernet II, Src: HuaweiTechno_11:25:07 (04:9f:ca:11:25:07), Dst: ChongqingFug_a0:4d:46 (28:cd:c4:a0:4d:46)
   > Destination: ChonggingFug a0:4d:46 (28:cd:c4:a0:4d:46)
   > Source: HuaweiTechno_11:25:07 (04:9f:ca:11:25:07)
     Type: IPv4 (0x0800)
> Internet Protocol Version 4, Src: 208.67.222.222, Dst: 10.107.16.97
> User Datagram Protocol, Src Port: 53, Dst Port: 64905
✓ Domain Name System (response)
Transaction ID: 0xaab9
   > Flags: 0x8180 Standard query response, No error
     Questions: 1
     Answer RRs: 2
     Authority RRs: 0
     Additional RRs: 0
   > Queries
   Answers
      v uniqlo.com: type A, class IN, addr 54.178.226.247
           Name: uniqlo.com
           Type: A (1) (Host Address)
           Class: IN (0x0001)
           Time to live: 60 (1 minute)
           Data length: 4
           Address: 54.178.226.247
      v uniqlo.com: type A, class IN, addr 13.113.93.57
           Name: unialo.com
           Type: A (1) (Host Address)
           Class: IN (0x0001)
           Time to live: 60 (1 minute)
           Data length: 4
           Address: 13.113.93.57
     [Request In: 266]
     [Time: 0.017855000 seconds]
```

2. No information for : AAAA RECORD

There is no AAAA record (IPv6 address) for "uniqlo.com" in the provided information.

```
208.67.222.222 DNS 70 Standard query 0x5aa9 AAAA uniqlo.com
  8.968588 208.67.222.222 10.107.16.97 DNS 151 Standard query response 0x5aa9 AAAA uniqlo.com SOA ns-517.awsdns-00.net
> Frame 270: 151 bytes on wire (1208 bits), 151 bytes captured (1208 bits) on interface \Device\NPF_{3BBD06A1-8E78-4FDB-8221-658091269CC9}, id 0
v Ethernet II, Src: HuaweiTechno_11:25:07 (04:9f:ca:11:25:07), Dst: ChongqingFug_a0:4d:46 (28:cd:c4:a0:4d:46)
  > Destination: ChongqingFug a0:4d:46 (28:cd:c4:a0:4d:46)
  > Source: HuaweiTechno_11:25:07 (04:9f:ca:11:25:07)
     Type: IPv4 (0x0800)
> Internet Protocol Version 4, Src: 208.67.222.222, Dst: 10.107.16.97
> User Datagram Protocol, Src Port: 53, Dst Port: 64906
✓ Domain Name System (response)
     Transaction ID: 0x5aa9
  > Flags: 0x8180 Standard query response, No error
     Questions: 1
     Answer RRs: 0
    Authority RRs: 1
     Additional RRs: 0
  > Queries

    Authoritative nameservers

     v uniqlo.com: type SOA, class IN, mname ns-517.awsdns-00.net
          Name: uniqlo.com
           Type: SOA (6) (Start Of a zone of Authority)
          Class: IN (0x0001)
           Time to live: 900 (15 minutes)
          Data length: 69
          Primary name server: ns-517.awsdns-00.net
          Responsible authority's mailbox: awsdns-hostmaster.amazon.com
          Serial Number: 1
           Refresh Interval: 7200 (2 hours)
          Retry Interval: 900 (15 minutes)
          Expire limit: 1209600 (14 days)
          Minimum TTL: 86400 (1 day)
     [Request In: 268]
     [Time: 0.344154000 seconds]
```

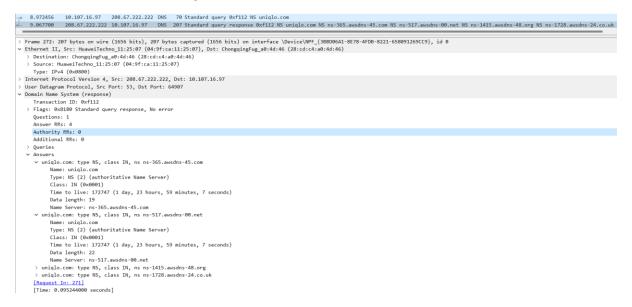
3. NS Record: ns-365.awsdns-45.com.

NS Record: ns-517.awsdns-00.net.

NS Record: ns-1415.awsdns-48.org.

NS Record: ns-1728.awsdns-24.co.uk.

You'll see NS records for the authoritative name servers: ns-365.awsdns-45.com, ns-517.awsdns-00.net, ns-1415.awsdns-48.org, and ns-1728.awsdns-24.co.uk.



MX Record: 0 uniqlo-com.mail.protection.outlook.com.

MX Record: 10 mail1.uniqlo.co.jp.

MX Record: 10 mail2.uniqlo.co.jp.

MX Record: 30 mail3.uniqlo.co.jp.

MX Record: 30 mail4.uniqlo.co.jp.

For mail exchange (MX) records, you'll see queries for mail servers handling emails for "uniqlo.com." The responses include the mail servers' names and priorities. In this case, you have MX records pointing to uniqlo-com.mail.protection.outlook.com, mail1.uniqlo.co.jp, mail2.uniqlo.co.jp, mail3.uniqlo.co.jp, and mail4.uniqlo.co.jp.

```
9.884563 10.107.16.97 208.67.222.222 D8.07.16.97 D85 221Standard query response 0x4772 MV uniqlo.com
9.737905 208.67.222.222 10.107.16.97 D85 221Standard query response 0x4727 MV uniqlo.com MX 0 uniqlo-com.mail.protection.outlook.com MX 10 mail1.uniqlo.co.jp MX 30 mail3.xi

Frame 280: 221 bytes on wire (1768 bits), 222 bytes captured (1768 bits) on interface \Device\UPF_[380006A1-8E78-4FD8-8221-658091269CC9), id 0

**The variable of the varia
```

No information for : CNAME RECORD

There is no information for CNAME records in the provided data.

```
208.67.222.222 DNS 70 Standard query 0x95cb CNAME uniqlo.com
9.688159 208.67.222.222 10.107.16.97 DNS 151 Standard query response 0x95cb CNAME uniqlo.com SOA ns-517.awsdns-00.net
> Frame 308: 151 bytes on wire (1208 bits), 151 bytes captured (1208 bits) on interface \Device\NPF {3BBD06A1-8E78-4FDB-8221-658091269CC9}, id 0
Ethernet II, Src: HuaweiTechno_11:25:07 (04:9f:ca:11:25:07), Dst: ChongqingFug_a0:4d:46 (28:cd:c4:a0:4d:46)
   > Destination: ChongqingFug_a0:4d:46 (28:cd:c4:a0:4d:46)
   > Source: HuaweiTechno_11:25:07 (04:9f:ca:11:25:07)
     Type: IPv4 (0x0800)
> Internet Protocol Version 4, Src: 208.67.222.222, Dst: 10.107.16.97
  User Datagram Protocol, Src Port: 53, Dst Port: 64909
v Domain Name System (response)
     Transaction ID: 0x95cb
   > Flags: 0x8180 Standard query response, No error
     Questions: 1
     Answer RRs: 0
     Authority RRs: 1
     Additional RRs: 0
   > Oueries

∨ Authoritative nameservers

     v uniqlo.com: type SOA, class IN, mname ns-517.awsdns-00.net
          Name: uniqlo.com
          Type: SOA (6) (Start Of a zone of Authority)
          Class: IN (0x0001)
          Time to live: 900 (15 minutes)
          Data length: 69
          Primary name server: ns-517.awsdns-00.net
          Responsible authority's mailbox: awsdns-hostmaster.amazon.com
          Serial Number: 1
          Refresh Interval: 7200 (2 hours)
          Retry Interval: 900 (15 minutes)
          Expire limit: 1209600 (14 days)
          Minimum TTL: 86400 (1 day)
     [Request In: 281]
     [Time: 0.396030000 seconds]
```

SOA Record: ns-517.awsdns-00.net. awsdns-hostmaster.amazon.com. 1 7200 900 1209600 86400

The authoritative name server for the domain, the responsible party for the domain, and various timing parameters.

ns-517.awsdns-00.net, awsdns-hostmaster.amazon.com, 1 7200 900 1209600 86400

primary-ns, responsible-email, serial, refresh, retry, expire, minimum-ttl (Time-to-Live)

```
10.107.16.97 208.67.222.222 DNS 70 Standard query 0x3cca SOA uniqlo.com
   9.785008
               208.67.222.222 10.107.16.97 DNS 151 Standard query response 0x3cca SOA uniqlo.com SOA ns-517.awsdns-00.net
 Frame 312: 151 bytes on wire (1208 bits), 151 bytes captured (1208 bits) on interface \Device\NPF_{3BBD06A1-8E78-4FDB-8221-658091269CC9}, id 0
v Ethernet II, Src: HuaweiTechno_11:25:07 (04:9f:ca:11:25:07), Dst: ChongqingFug_a0:4d:46 (28:cd:c4:a0:4d:46)
  > Destination: ChongqingFug_a0:4d:46 (28:cd:c4:a0:4d:46)
  > Source: HuaweiTechno_11:25:07 (04:9f:ca:11:25:07)
    Type: IPv4 (0x0800)
> Internet Protocol Version 4, Src: 208.67.222.222, Dst: 10.107.16.97
 User Datagram Protocol, Src Port: 53, Dst Port: 64910
v Domain Name System (response)
    Transaction ID: 0x3cca
   > Flags: 0x8180 Standard query response, No error
    Questions: 1
    Answer RRs: 1
    Authority RRs: 0
    Additional RRs: 0
  > Queries
     v uniqlo.com: type SOA, class IN, mname ns-517.awsdns-00.net
          Name: unialo.com
          Type: SOA (6) (Start Of a zone of Authority)
          Class: IN (0x0001)
          Time to live: 900 (15 minutes)
          Data length: 69
          Primary name server: ns-517.awsdns-00.net
          Responsible authority's mailbox: awsdns-hostmaster.amazon.com
          Serial Number: 1
          Refresh Interval: 7200 (2 hours)
          Retry Interval: 900 (15 minutes)
          Expire limit: 1209600 (14 days)
          Minimum TTL: 86400 (1 day)
     [Request In: 309]
     [Time: 0.094069000 seconds]
```

No information for : SRV RECORD

Specific request for SRV records was not made during the packet capture.

```
208.67.222.222 DNS 70 Standard query 0xb796 SRV uniqlo.com
   9.811918 208.67.222.222 10.107.16.97 DNS 151 Standard query response 0xb796 SRV uniqlo.com SOA ns-517.awsdns-00.net
 Frame 319: 151 bytes on wire (1208 bits), 151 bytes captured (1208 bits) on interface \Device\NPF_{3BBD06A1-8E78-4FDB-8221-658091269CC9}, id 0
v Ethernet II, Src: HuaweiTechno_11:25:07 (04:9f:ca:11:25:07), Dst: ChongqingFug_a0:4d:46 (28:cd:c4:a0:4d:46)
  > Destination: ChongqingFug a0:4d:46 (28:cd:c4:a0:4d:46)
  > Source: HuaweiTechno_11:25:07 (04:9f:ca:11:25:07)
     Type: IPv4 (0x0800)
> Internet Protocol Version 4, Src: 208.67.222.222, Dst: 10.107.16.97
> User Datagram Protocol, Src Port: 53, Dst Port: 64911
v Domain Name System (response)
    Transaction ID: 0xb796
  > Flags: 0x8180 Standard query response, No error
    Questions: 1
    Answer RRs: 0
    Authority RRs: 1
    Additional RRs: 0
  > Queries

∨ Authoritative nameservers

     v uniglo.com: type SOA, class IN, mname ns-517.awsdns-00.net
          Name: uniqlo.com
          Type: SOA (6) (Start Of a zone of Authority)
          Class: TN (0x0001)
          Time to live: 900 (15 minutes)
          Data length: 69
          Primary name server: ns-517.awsdns-00.net
          Responsible authority's mailbox: awsdns-hostmaster.amazon.com
          Serial Number: 1
          Refresh Interval: 7200 (2 hours)
          Retry Interval: 900 (15 minutes)
          Expire limit: 1209600 (14 days)
          Minimum TTL: 86400 (1 day)
     [Request In: 316]
     [Time: 0.022073000 seconds]
```